Name _____ Date_____

Florida Science Assessment Practice Test B

Read each question and choose the best answer. Then use the answer sheet to fill in the letter for the correct answer.

Use the information to answer questions 1 through 3.

Two student lab groups carried out an identical experiment: They poured a set amount of water into a small clear box, taped a thermometer onto the inside of the box, and sealed the box tightly with a clear lid. Each group then placed their box on the classroom windowsill.

For five days, the lab groups observed and recorded the level of condensation that occurred within their boxes. They also recorded the temperature within the box. Below are the data from Group A.

Group A		
Day	**Amount of Condensation**	**Temperature (C°)**
1	Low	21
2	Low	22
3	High	26
4	High	28
5	Low	23

With permission from their teacher, Group A started the experiment over again and carried it out for another 5-day period.

Name _____ Date_____

❶ Which is the **most likely** prediction that students made as they began this experiment?

A. The amount of water placed in the box would affect condensation level.

B. The position of the box on the windowsill would affect temperature.

C. The temperature within the box would affect condensation level.

D. The condensation in the box would be limited because the water would evaporate.

❷ At the end of two weeks, how might the lab groups differ in their ability to support conclusions about their observations?

F. Group A will better support their conclusions because they repeated the experiment and will have more observations.

G. Group B will better support their conclusions because they did not repeat the experiment so they did not risk potential error.

H. Group B will better support their conclusions because they have fewer observations to explain.

I. Differences between the groups' ability to support conclusions may be due to mistakes and cannot be determined.

❸ Observing levels of condensation as "low" or "high" is not a precise measurement. What could the students do to **best** improve the consistency of their observations in future tests?

A. Each group could alternate which member observes condensation each day to help reduce variables in the tests.

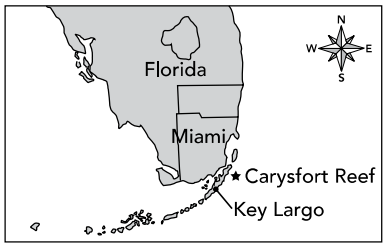
B. The two groups could make their observations at a different time each day so that the time of day is not affecting the data.

C. Both groups could photograph the other group's levels of condensation each day so that they can compare the photos.

D. Groups could move the box each day to spots closer to or farther from the window to ensure they receive equal sunlight.

Name _____ Date_____

The Florida Keys were formed only 100,000 years ago. At this time, the glaciers of Earth had receded significantly, and the sea level had risen. Most of Florida was under a shallow sea, much like what currently exists off of the Florida coast. At this time, a shallow water reef formed from the corals that lived there. By the time of the next ice age, the sea levels dropped, and these formations rose above the waves.



4 What is the best summary of this information?

F. The hydrosphere changed the atmosphere, which changed the lithosphere, which changed the cryosphere.

G. The cryosphere changed the hydrosphere, which changed the biosphere, which changed the lithosphere.

H. The atmosphere changed the cryosphere, which changed the biosphere, which changed the hydrosphere.

I. The cryosphere changed the biosphere, which changed the lithosphere, which changed the hydrosphere.

5 The Florida Keys do not closely resemble the corals that produced them. What is the best explanation for this observation?

A. Chemical weathering of the coastlines in the time since the islands were formed.

B. Deposition of new sediments from the rivers that flow through Florida.

C. Glacial movement that scraped the reefs into a new form.

D. Weathering of the rocks that were produced during the last interglacial period.

6 Most of the other islands in the Caribbean Sea were formed from ancient volcanoes. What features of these islands most clearly demonstrate this important difference of origin?

F. The Florida Keys do not have rivers.

G. The Caribbean islands do not have the same coastline.

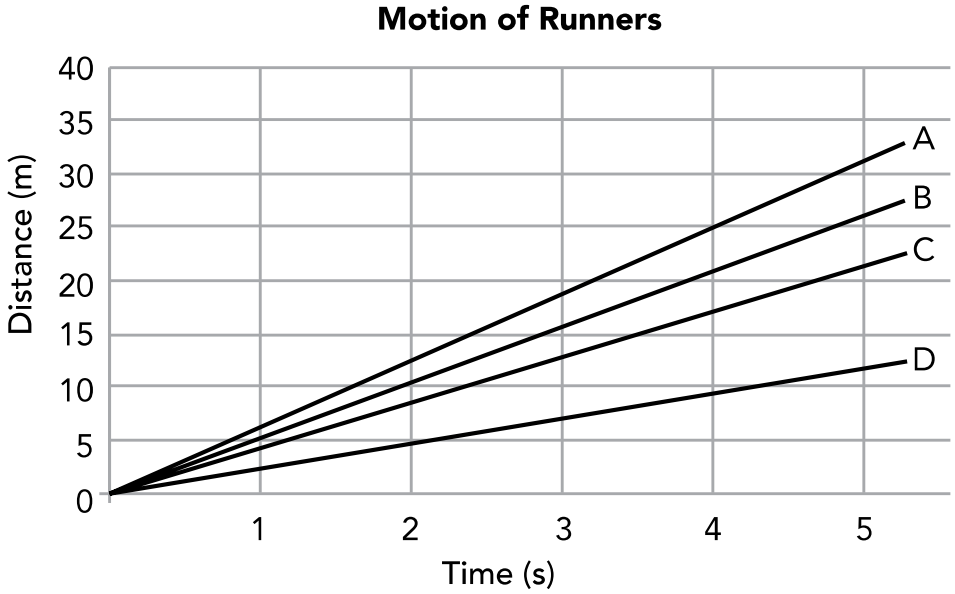
H. The Caribbean islands have tall mountains.

I. The Florida Keys have many sand dunes.

Name _____ Date_____

Use the information to answer questions 7 through 9.

Students record data about the motion of four runners as they move along a straight path. Then they use the data to make a graph.



7 Jen is running at a speed of 5m/s. Which line on the graph represents Jen's motion?

A. Line A

B. Line B

C. Line C

D. Line D

8 In what way is the motion of all of the runners similar?

F. All of the runners moved at a constant speed.

G. All of the runners slowed down at the end of the time period.

H. All of the runners moved 5 meters in the first second.

I. All of the runners had the same average speed.

9 If the runners continued to move at the same average speed, which of the runners would complete the 100m dash in under 15 seconds?

A. Tara

B. Swati

C. Maria

D. Jen

Name _____ Date_____

Use the information to answer questions 10 through 12.

There are many diseases that can infect the body. These diseases can be carried by infectious agents called pathogens. The table below describes some of these pathogens which can carry infection to humans.

Pathogen Table

Pathogen	Description of Pathogen	Description of Some Effects
Bacteria	• Small • Single celled • Can live both inside and outside the body • Spores can survive for thousands of years	Damage cells causing strep throat, pneumonia, and tetanus
Virus	• Thread-like particles • Can only reproduce inside the body • Can live for a short time outside the body • Can change or mutate very quickly • Smaller than bacteria	Destroy host cells causing infections such as common cold, flu, and measles.
Fungi	• Threadlike filaments or individual cells • Usually invisible to the naked eye • Thrive in soil and air that is warm and moist. • Obtain food from other organisms	Grows in dark, damp places like between the toes causing athlete's foot.

Name _____ Date_____

10 Antibiotics can only treat bacterial infections and not viral illnesses. Which of the following infections can be treated by antibiotics?

F. flu

G. measles

H. strep throat

I. common cold

11 An outdoor area is dry and hot for very long periods of time. Which type of pathogen is **best** suited for survival in these types of conditions.

A. fungi

B. viruses

C. bacteria cells

D. bacteria spores

12 Over the years, scientists have created many different drugs to combat viruses. When a person does not take all of their prescribed medication, some of the virus may survive. When this happens, the virus can become resistant to the drug the person was taking. Based on this information and the pathogen table, which statement is **most likely** true?

F. Viruses are easy to treat in all humans.

G. Viruses will eventually become resistant to all drugs.

H. Scientists will keep changing methods to treat mutant viruses.

I. Scientists will change to other pathogens that are easier to treat.

Name _____ Date_____

Use the information to answer questions 13 through 15.

Two students are completing a lab exercise together. They create the following chart to record their findings.

	Test 1: Cart Alone	Test 2: Cart with Block on it
Measurement A: Distance (m)		
Measurement B: ?		

13 Which other property must the students measure to determine the object's speed?

A. the amount of time it is in motion

B. its total volume

C. its total mass

D. the length of the block added to it

14 What is the **most likely** prediction the students make as they begin their experiment?

F. The speed will affect the distance it rolls.

G. The distance rolled will not be affected by its mass.

H. Its mass will affect its speed.

I. Its volume will affect its speed.

15 To better compare the results of their two tests, the students decide to graph the speed of both. What are the correct labels for their graph?

A. mass (horizontal axis) and time (vertical axis)

B. time (horizontal axis) and distance (vertical axis)

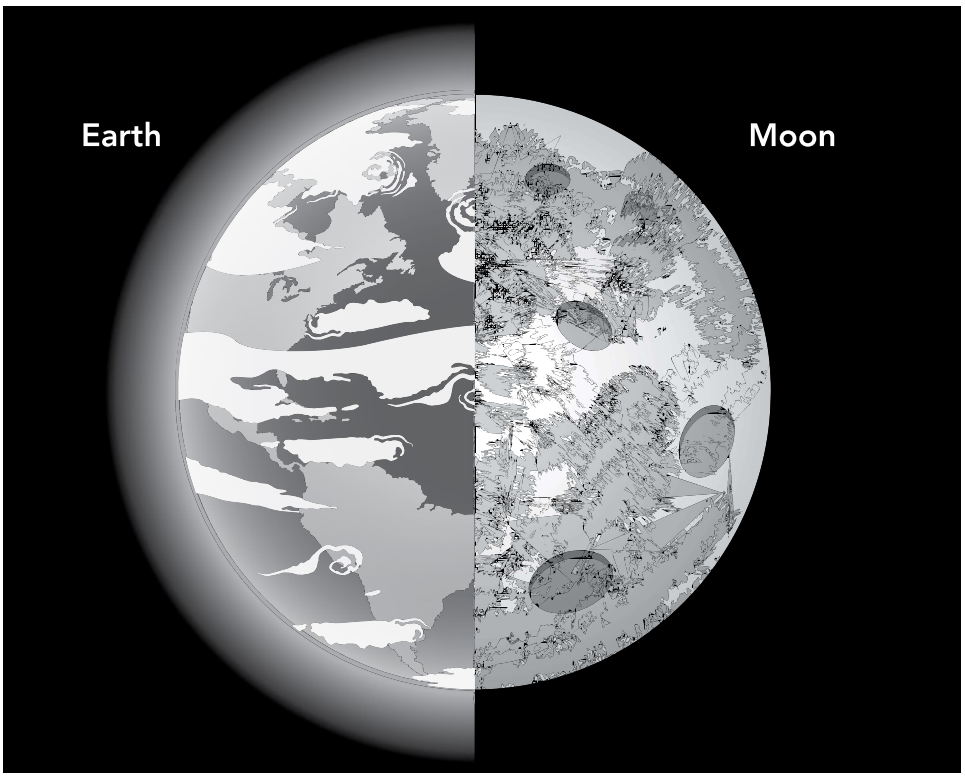
C. volume (horizontal axis) and mass (vertical axis)

D. distance (horizontal axis) and volume (vertical axis)

Name _____ Date_____

Use the information to answer questions 16 through 18.

Earth's atmosphere surrounds the entire planet. It is made of gasses, mostly nitrogen, oxygen, argon, and carbon dioxide. The moon, however, has very little atmosphere.



Name _____ Date_____

16 How does the atmosphere affect the temperature on Earth?

F. Wind speeds are increased, keeping the planet cool.

G. It helps hold heat in, keeping the planet warm.

H. Sunlight is reflected away, keeping the planet cool.

I. The gasses expand as they rise, keeping the planet warm.

17 What would **best** describe an affect that losing the atmosphere would have on Earth?

A. Severe storms would occur around the world.

B. There would be flooding along rivers and coasts.

C. The planet would increase in temperature.

D. UV rays would reach the surface unfiltered.

18 What **best** describes how the atmosphere affects the hydrosphere?

F. Water on the land evaporates, causing clouds to form from the condensed water.

G. Precipitation falls on the land, where it melts and is filtered through the soil.

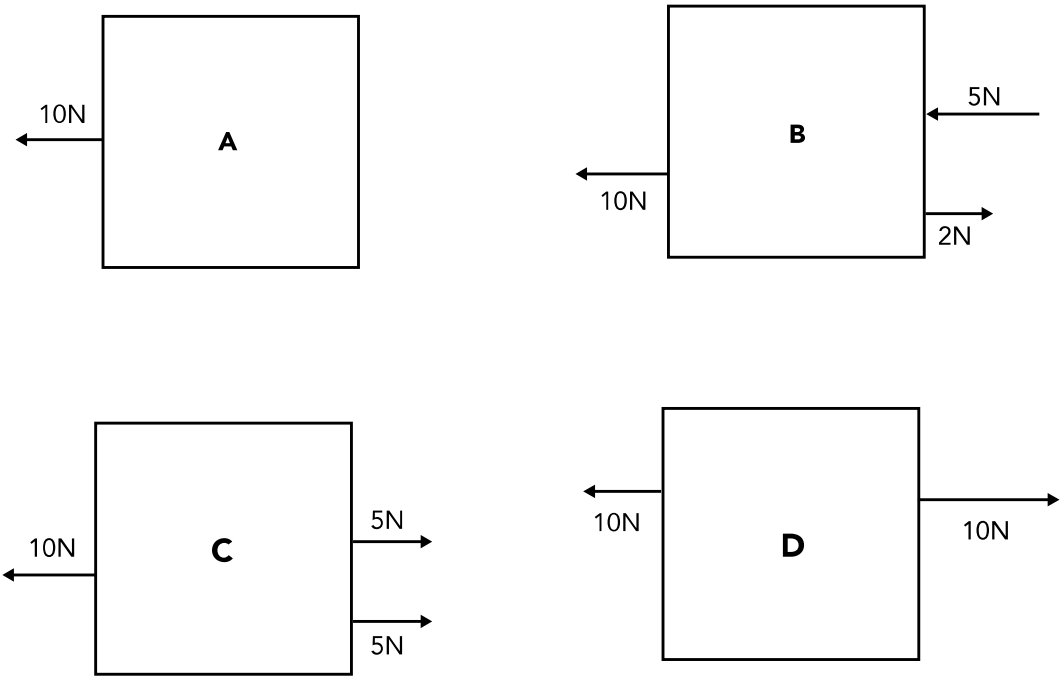
H. Condensation forms clouds, which sends water back to the oceans by precipitation

I. Ground water collects in pools, where it is evaporated due to heat from the Sun.

Name _____ Date_____

Use the information to answer questions 19 through 21.

Four boxes sit unmoving on the floor. Forces are then applied to the boxes. The diagrams below show the forces applied to the four different boxes. The boxes are all the same size and shape.



Name _____ Date_____

19 Which set of boxes will begin moving due to the applied forces?

A. Box A and Box B

B. Box C and Box D

C. Boxes A, B, C, and D

D. Boxes A, B, and C

20 Which box has the **greatest** net force acting on it?

F. Box A

G. Box B

H. Box C

I. Box D

21 For the boxes that begin moving, the motion is to the left. What best explains why the boxes are moving in the same direction?

A. For all of the boxes with a net force, it is to the left.

B. The boxes that begin moving are not acted on by forces in any direction except left.

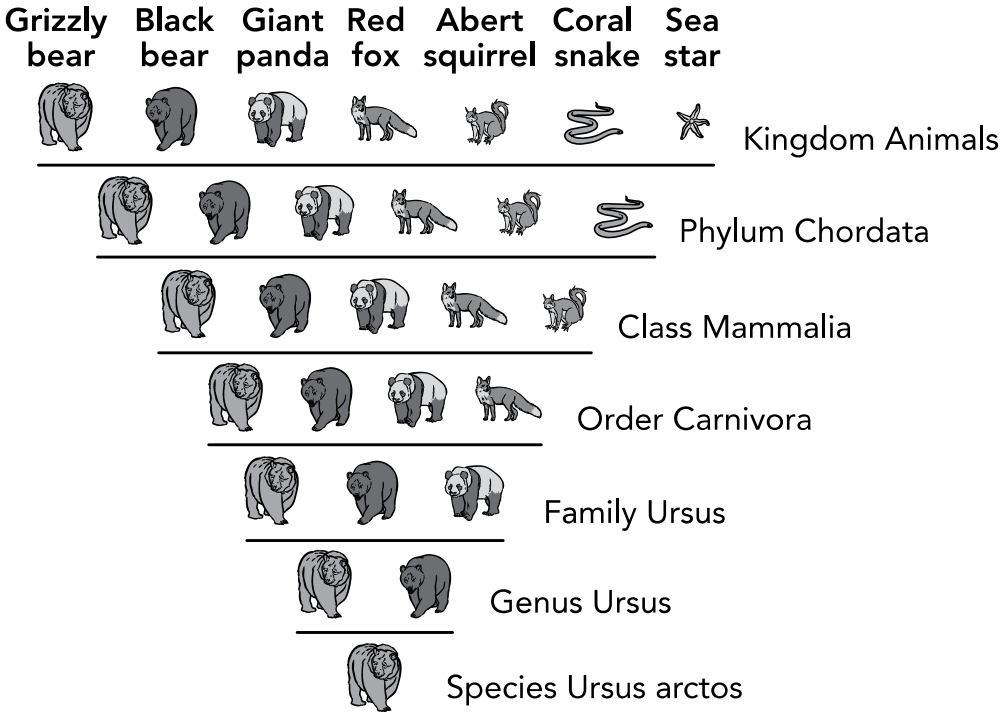
C. Objects acted on by balanced forces move to the left.

D. Unbalanced forces on a group of objects always result in the same speed and direction of motion.

Name _____ Date_____

Use the information to answer questions 22 through 24.

A biologist often classifies living things, called organisms, on Earth. Organisms have many characteristics that they share and can be grouped together or classified because of these characteristics. Biologists often use the Linnaean classification system to classify these organisms. The further you move down the Linnaean classification, the more characteristics the organisms have in common.



Name _____ Date_____

22 Carolus Linnaeus created a method of naming organisms, known as binomial nomenclature. This was based on using two names in the system of classification. Which two names of organisms are used in binomial nomenclature?

F. domain and kingdom

G. phylum and class

H. order and family

I. genus and species

23 James is classifying plants in his yard. He places a common oak tree and a rose bush in the same phylum, but in different orders. Which explanation **best** describes why James classified the plants the way he did?

A. They were in the same phylum because they shared some characteristics, but too many for the same order.

B. They were in same phylum because they shared some characteristics but not enough for the same order.

C. They were placed in the same phylum because they were also in the same kingdom in the Linnaean system.

D. They were placed in the same phylum because they did not have enough characteristics for the kingdom or order.

24 The diagram shows how a group of animals can be classified using the Linnaean System. Which animals are **most** closely related to each other?

F. The sea star and coral snake because they are in the same kingdom.

G. The grizzly bear and black bear because they are in the same genus.

H. The grizzly bear, black bear and giant panda because they are at the top of the chart.

I. The red fox, abert squirrel, coral snake and sea star because they are all similar in size.

Name _____ Date_____

Use the information to answer questions 25 through 27.

A school sits on a large space with both grassy and forested areas. During one class period, a teacher takes her science class outdoors and asks students to locate and group as many organisms as it can into broad categories. She assigned students to different areas of the school property. Each student completes a table similar to the one below.

Type of Organism	Number Observed
Tree	15
Shrub	2
Bird	3
Mammal (squirrel)	0
Insect	4
Worm	0
Fungi	10

During the next class period, students compare and combine their findings. They discuss differences and similarities in their observations.

Name _____ Date_____

25 What type of activity is being carried out by these students?

A. An experiment to determine the effect of shade on the occurrence of birds

B. An investigation to learn more about the living things found around the school

C. An experiment to determine which part of the school yard is most affected by humans

D. An investigation to learn which methods most precisely observe organisms

26 What sets a scientific experiment apart from other types of investigations?

F. It manipulates variables and explores cause-and-effect relationships.

G. It makes observations about the natural world.

H. It uses a particular set of methods.

I. It avoids interference of processes occurring in the natural world.

27 Which statement **best** describes the benefits or limitations of this activity?

A. No real information can be gathered by this activity.

B. The activity allows students to make specific conclusions about the distribution of nearby organisms.

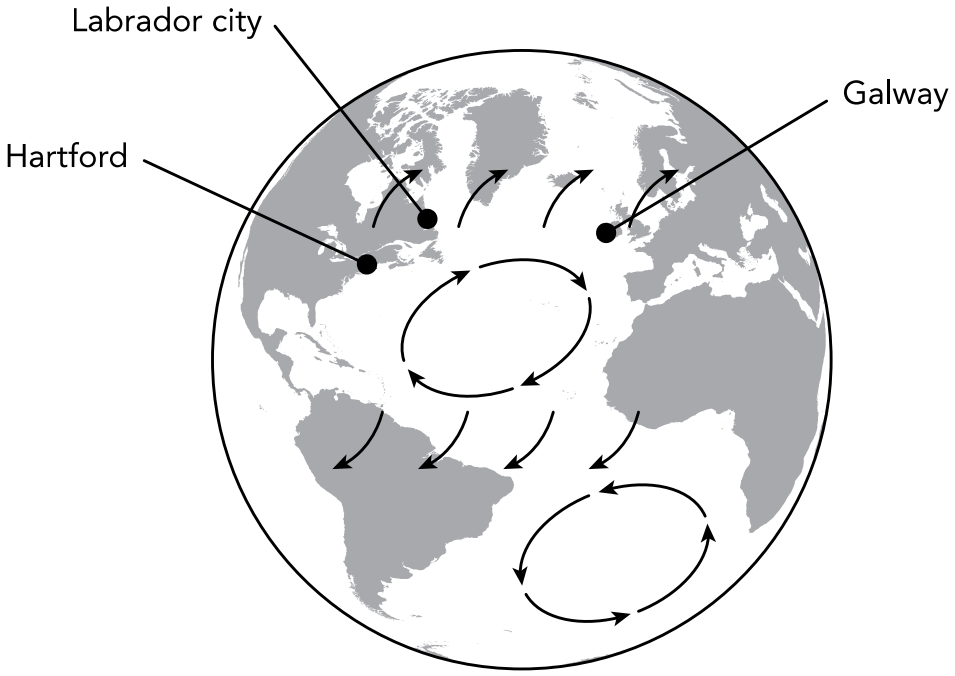
C. The activity is not helpful because it does not account for weather patterns.

D. Through this activity, students gain a better idea of the common organisms on the property.

Name _____ Date_____

Use the information to answer questions 28 through 30.

Galway, Ireland, and Hartford, Connecticut, have very similar climates. Both experience approximately 115 cm of rain each year. Both have an average high temperature of about 15°C and an average low temperature of 5°C. Both grow similar crops. And both have residents that enjoy the climate in much the same ways, wearing similar styles of clothing. The strange fact is that Dublin is at latitude 53°N while Hartford is at latitude 41°N. Dublin is at the same longitude as Labrador City, Canada, a much colder city.



Name _____ Date_____

28 Look at the map. What is the most likely cause of this phenomenon?

F. Hartford is tipped a little bit further from the Sun than Galway because it is in a different hemisphere.

G. Galway must receive warm water from the Atlantic gyre.

H. Hartford must get more cold water from the ocean than Galway.

I. Galway loses its cold from the motion of the Atlantic gyre.

29 Even though Galway and Hartford have similar climates, the weather is often very different. What is the best explanation of this expression?

What is a good example of this idea of similar climates but different weather?

A. When it's raining in Hartford it's foggy in Galway, each giving the same amount of precipitation over different periods of time.

B. When it's snowing in Galway it's raining in Hartford because they are experiencing different seasons.

C. The average temperature of Hartford is higher because of the fact that it is a larger city with more heat and air pollution.

D. It rains in Galway two days after it rains in Hartford because it takes a while for the weather fronts to move across the ocean.

30 As a result of the similar climate, what prediction about the different spheres of Earth would you expect to be similar comparing Hartford and Galway?

F. Both would have a similar geosphere because both are subject to the same rates of weathering and precipitation.

G. Both have a similar biosphere, because species from one area could survive in the other.

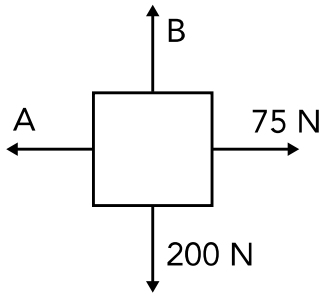
H. Both would have a similar atmosphere because both have the same temperature and humidity

I. Both would have a similar biosphere, because adaptations from one area would help organisms survive in the other.

Name _____ Date_____

Use the information to answer questions 31 through 33.

Students diagramed the forces acting a skateboard. The skateboard is currently rolling to the right on a level path at a constant speed.



Name _____ Date_____

31 What is a possible magnitude for Force A?

A. 25 N

B. 50 N

C. 100 N

D. 200 N

32 A student claims that the magnitude of Force B is 200N. What evidence **best** supports this student's claim?

F. The skateboard's wheels do not leave the ground.

G. The skateboard is speeding up.

H. The skateboard moves by rolling, not sliding.

I. The skateboard stops at the end of the path.

33 What evidence would support a student's claim that the forces acting on the skateboard are balanced?

A. It is slowing to a stop.

B. It is moving at a constant speed and direction.

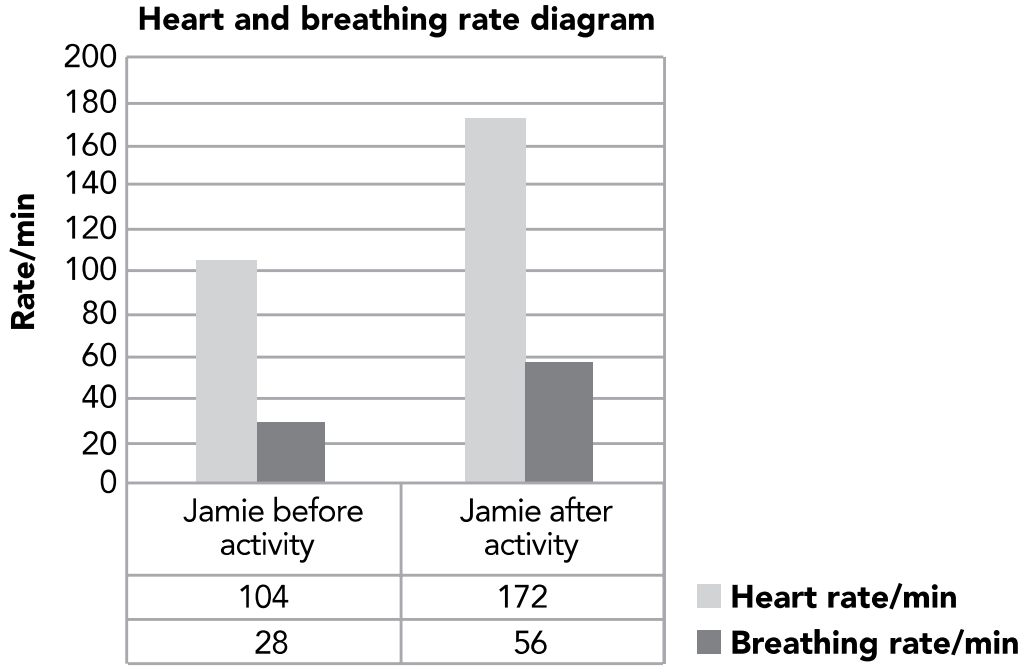
C. It is turning a corner.

D. It has positive acceleration.

Name _____ Date_____

Use the information to answer questions 34 through 36.

In order to make sure the body is healthy and functioning properly, different systems work together to maintain a balance called homeostasis. A student wants to investigate the relationship between the respiratory system and the circulatory system. She decided to try a small experiment. She took her heart rate at rest for one minute. She also counted the number of times she was exhaling in the same amount of time. Then she ran on the spot for 5 minutes and repeated the same measurements immediately. Her results were placed in a graph as shown below.



Name _____ Date_____

34 The lungs help the body maintain homeostasis. The student records that the lungs inhale air, oxygen is absorbed into blood vessels in the lungs, and the lungs exhale air. Which other action should the student also include in the list?

F. Oxygen from the lungs is absorbed by leg muscles.

G. Carbon dioxide is released by blood into the lungs.

H. Cells absorb nutrients to create more bone tissue.

I. Blood circulates from the heart towards the lungs.

35 Which conclusion can the student make about the relationship between the circulatory and respiration systems?

A. There is a no relationship because neither system is directly connected to one another.

B. There is a direct relationship because the heart rate increases as the breathing rate increases.

C. There is a direct relationship because the heart rate decreases as the breathing rate increases.

D. There is a weak relationship because there is little change in the breathing and the heart rate.

36 How would the student's digestion be affected by the results shown in the graph?

F. Digestion would cease, because the blood in the body would be flowing at an increased rate to the muscles.

G. Digestion rate would decrease with exercise, because the breathing would already be increasing.

H. Digestion rate would remain constant, because digestion does not affect heart rate.

I. Digestion rate would increase with exercise, because the digestive system and circulatory system are linked.

Name _____ Date_____

Use the information to answer questions 37 through 39.

A team of medical researchers is testing a new medication that they hope will successfully treat burns. Their results are in the table below.

		Patient A – Standard Medication	Patient B – Standard Medication	Patient C – New Medication	Patient D – New Medication
New Skin Growth (cm^2)	Day 5	1	0.5	3	2.5
	Day 10	2	1.5	5	4.5
	Day 15	4	3.5	6.5	7
	Day 20	4.5	5	8	8.5

Name _____ Date_____

37 What will other researchers hope to gain by replicating this investigation?

A. The ability to reproduce the results so a more confident conclusion can be made about the medication.

B. The potential to examine procedures because they are suspicious about the methods used to create the medication formula.

C. The ability to carry out a successful experiment because they are not able to think of their own original experiments.

D. The opportunity to gain experience with new laboratory techniques that they have not been exposed to before.

38 Which of the following approaches to this experiment shows the researchers' creativity?

F. Researchers use exactly the same amount of medication on each patient.

G. Researchers treat patients of similar ages.

H. When some patients experience muscle pain, researchers explore the cause.

I. Researchers use known analysis methods to understand their data that has been collected.

39 Which activity is **most** similar to the researchers' investigation of new treatments for burns?

A. reading about how coal mining techniques have changed over the years

B. comparing paintings of coastal scenes to explore their differences

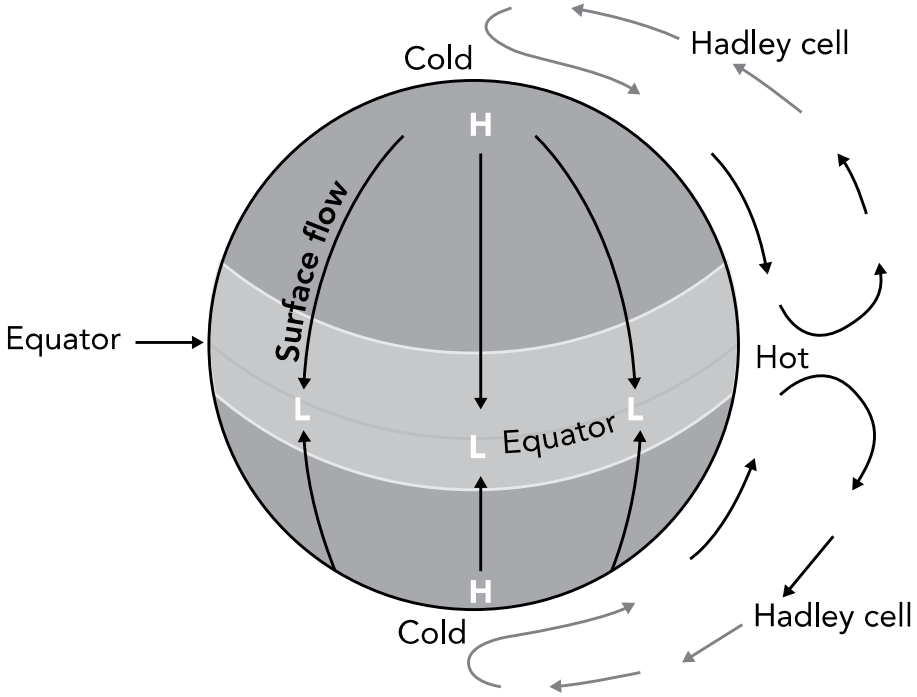
C. observing daily air temperature to see if it affects the number of birds at a feeder

D. interviewing a television reporter who focuses on politics

Name _____ Date_____

Use the information to answer questions 40 through 42.

Scientists model three incredibly large convection cells in Earth's atmosphere. Named for the scientist who discovered them, these massive cells are responsible for many of the climate conditions around Earth. The largest cells form at the equator, where the heat from the Sun is highest. This diagram shows the direction air movement caused by Hadley cell formation. The atmosphere of Earth holds three different convection cycles, some of which are not present in this diagram.



Name _____ Date_____

40 What is the most likely effect of an area where Earth's winds converge for massive air uplift?

F. The formation of even stronger winds.

G. The development of large cloud systems.

H. The increase of air pressure as air comes together.

I. A constant change in the direction of winds.

41 Which feature of the biosphere can be best explained by this action of the atmosphere?

A. The formation of dry desert.

B. The seasons of temperate forest.

C. The stable conditions of Mediterranean grasslands.

D. The survival of tropical rain forest.

42 The heated areas of convergence of the Hadley cells change over the course of time on the planet Earth.

What is most likely the cause of such large changes in global atmospheric conditions?

F. The day to night cycle of solar radiation.

G. The monthly cycle of the moon's position.

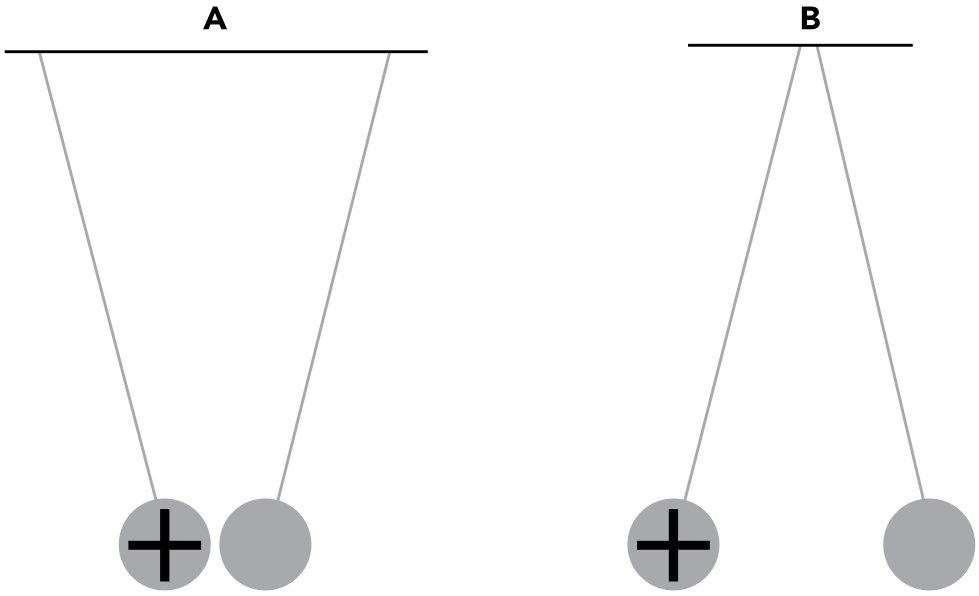
H. The yearly change of the angle of the Sun in the sky.

I. The gradual wobble of Earth on its axis of rotation.

Name _____ Date_____

Use the information to answer questions 43 through 45.

Students investigate static electric charges. They make a diagram to show two different sets of balls.



Name _____ Date_____

43 Which are possible charges on the right sphere in Part A of the diagram?

A. positive only

B. positive or uncharged

C. negative only

D. negative or uncharged

44 Which are possible charges on the right sphere in Part B of the diagram?

F. positive only

G. positive or uncharged

H. negative only

I. negative or uncharged

45 A student places a negatively-charged wand between the spheres in set-up B. What best describes what will occur?

A. The spheres will be further repelled away from the wand and each other.

B. The spheres will both be attracted to the wand.

C. The left sphere will move toward the wand and the right sphere will move toward it.

D. The right sphere will move toward the wand and the left sphere will move toward it.

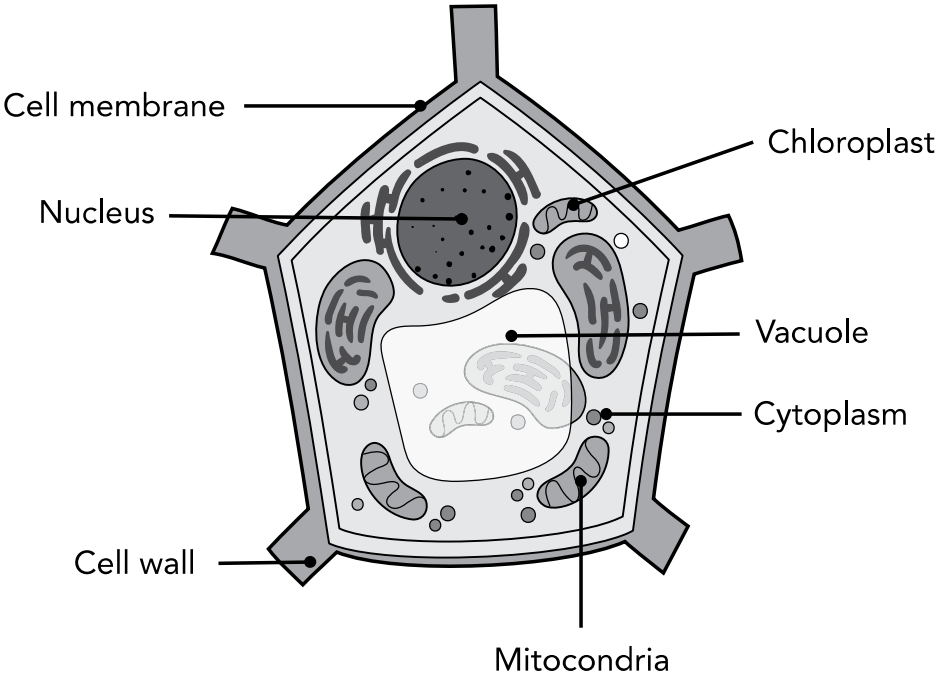
Name _____ Date_____

Use the information to answer questions 46 through 48.

Arlene is investigating the how the structures she sees in a single cell fit into the modern cell theory. She draws the diagram and makes notes as shown below.

Arlene's Cell Notes

- Nutrients pass through the cell membrane into liquid part of the cell called the cytoplasm.
- Plant cells contain sausage shaped structures called mitochondria that help change food into energy (cellular respiration).
- Cells have chloroplasts which are structures that use sunlight, water and carbon dioxide to make food for the organism (photosynthesis).



Name _____ Date_____

46 Which of the following **best** applies to Arlene's notes?

F. Her notes agree with modern cell theory, because all cellular processes depend on the cell's structures.

G. Her notes disagree with modern cell theory, because all organisms' cells undergo very different processes.

H. Her notes are incomplete, because they do not describe the reproduction process of all cells.

I. Her notes are complete, because they show the parts that are present in all living organisms' cells.

47 Which of the following statements **best** describes how this diagram represents cell theory?

A. The cell comes from preexisting cells.

B. Cells have many different shapes and sizes.

C. Basic functions are being carried out inside the cell.

D. Information about the cell is being passed on to other cells.

48 Which of the following sentences **best** summarizes how the diagram is NOT a **complete** example of cell theory?

F. The diagram only represents plants.

G. The cell is from a single-celled organism.

H. The cell has organelles missing.

I. The cell is made up of different chemicals than other cells.

Name _____ Date_____

Use the information to answer questions 49 through 51.

The data table below shows the mass balance of various glaciers around Earth. Mass balance refers to the total amount of melting and growing that a glacier typically undergoes in a year. A negative number indicates that the glacier is, on average, shrinking in mass.

Glacier	**Enchaurren**	**Md. Lovenbreen**	**Engabr**	**Thjorsarjokull**	**Blagnipujokull**
Country	Norte, Chile	Norway	Norway	Iceland	Iceland
1990	−1530	−510	689	110	−680
1991	−1050	100	2339	−990	−1490
1992	1740	−140	1039	1610	680
1993	−290	−880	417	1120	130
1994	−1860	−120	1734	−180	−720
1995	−950	−790	831	−800	−1170
1996	−1180	20	1223	−1170	−1230
1997	−2880	−430	160	−1150	−1420
1998	2890	−590	779	−1180	−1590
1999	−4260	−340	−30	−510	−1090

Name _____ Date_____

49 What other source of data would scientists try to collect in order to explain the changes in most of the glaciers on this table?

A. The height and level of the sea near these glaciers.

B. The average temperature of the air in these locations.

C. The amount of chlorofluorocarbons in the atmosphere.

D. The age of the ice in these glaciers.

50 What might be a likely explanation for glacier Engabr's surprising data set?

F. Scientists making mistakes in their measurement of this glacier.

G. Decreased temperatures causing more ocean water to freeze.

H. Scientific bias trying to prove the theory of climate change.

I. Increased precipitation in the area from what had happened in the past.

51 Some people argue that the presence of glacier Engabr is enough to disapprove the hypothesis that the climate of Arctic regions is changing.

What is the best way to explain to this person the relationship between climate and weather?

A. Climate looks at the average pattern of a whole area, while weather is concerned with individual days and individual locations.

B. Climate does not take into account strange observations, while weather does.

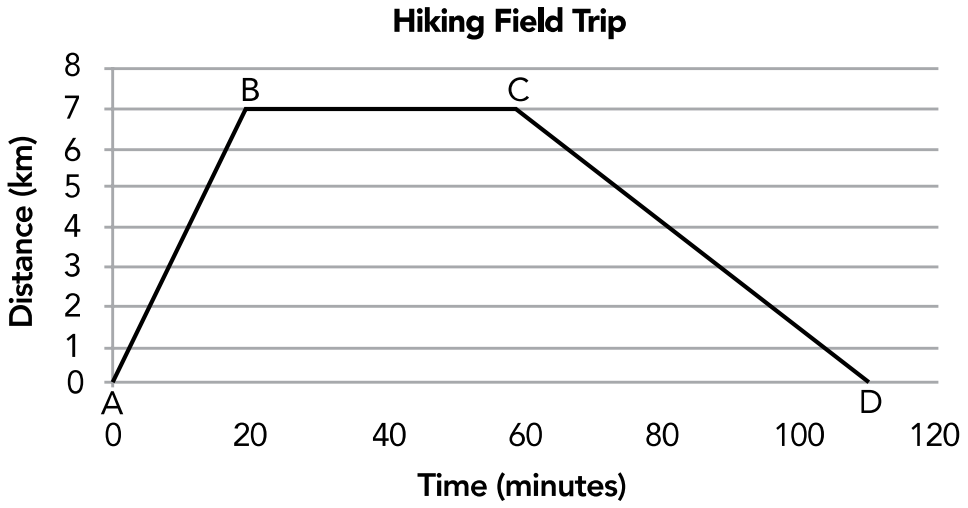
C. The climate can be getting hotter in some areas even while the climate in other areas is getting colder, without changing the weather.

D. We can disregard the data from this glacier because it does not match the average data from the arctic climate.

Name _____ Date_____

Use the information to answer questions 52 through 54.

Students on a hiking field trip measured and recorded their motion and made a graph to show their data. They started recording data as soon as they left the bus.



Name _____ Date_____

52 If the students had hiked back to the bus at the same rate of speed they hiked away from the bus, how much sooner would they have been able to get back to school, if the bus ride took the same amount of time in both directions?

F. 20 minutes

G. 30 minutes

H. 50 minutes

I. about 110 minutes

53 A student viewed the graph representing the hike, and argued that the graph was wrong, because it shows they traveled a distance of 0 km. Which explanation would **best** address this student's argument?

A. The student is correct, the graph is wrong.

B. The graph shows 0 km traveled because the students hiked an equal distance in opposite directions.

C. The graph shows 0 km traveled because the hiking path was most up and down a hill.

D. The graph shows 0 km traveled because the speed of the hikers varied.

54 How does the speed of motion from the bus to the destination (Points A to B on the graph) compare to the speed of motion from the destination back to the bus (Points C to D on the graph)?

F. The speed and direction of motion were the same.

G. The speed was the same but the direction was different.

H. The direction and the speed were different.

I. The direction was the same but the speed was different.

Name _____ Date_____

Use the information to answer questions 55 through 57.

Helen is studying how the nervous system controls most body activities. She wants to find out how fast messages are received visually by the brain and then sent to the muscles. She considers using one of the following two methods for conducting this investigation.

Method 1	Method 2
1. Have a friend sit at a table with their hand over the edge. 2. Hold the ruler at the 30 cm mark so that the 0 cm end is just at your friend's middle finger. 3. Tell your friend that when you release the ruler, grab it as fast as possible. 4. Record the centimeter mark. The lower the centimeter mark the faster the time. 5. Repeat the experiment three more times.	1. Have all four classmates join hands and stand in a line. 2. The first classmate in the line holds the stopwatch and the last classmate holds the whistle. 3. Have the first child start the watch and squeeze the hand of the next student in line. 4. That child squeezes the hand of the next child in line and so on. When the last child's hand is squeezed, he or she should blow the whistle, and the first in line stops the watch. 5. Record how long it took for the message to travel in seconds.

Name _____ Date_____

55 Which is the **best** method to use for Helen's investigation?

A. Method 1 because it uses fewer materials.

B. Method 2 because it records time accurately.

C. Method 1 because it measures a visual stimulus and repeats the experiment.

D. Method 2 because it records the time and has more participants in the experiment.

56 Helen decides to conduct both experiments three times. Using Method 1, she finds the average distance is 5 cm. Using Method 2, she records an average difference of 3 seconds. Which conclusion **best** summarizes Helen's results to both experiments?

F. Nerve impulses from the brain move quickly to muscles.

G. Nerve impulses from the brain move very slowly to muscles.

H. Nerve impulses from the brain only go to muscle in the heart.

I. Nerve impulses from the brain do not move towards muscles.

57 Helen also would like to find out how far the nerve impulses travelled throughout all her classmates in Method 2. Which measurement is the **best** way to estimate the distance the nerve impulses traveled?

A. Find each person's height.

B. Measure the shoulder width of each person.

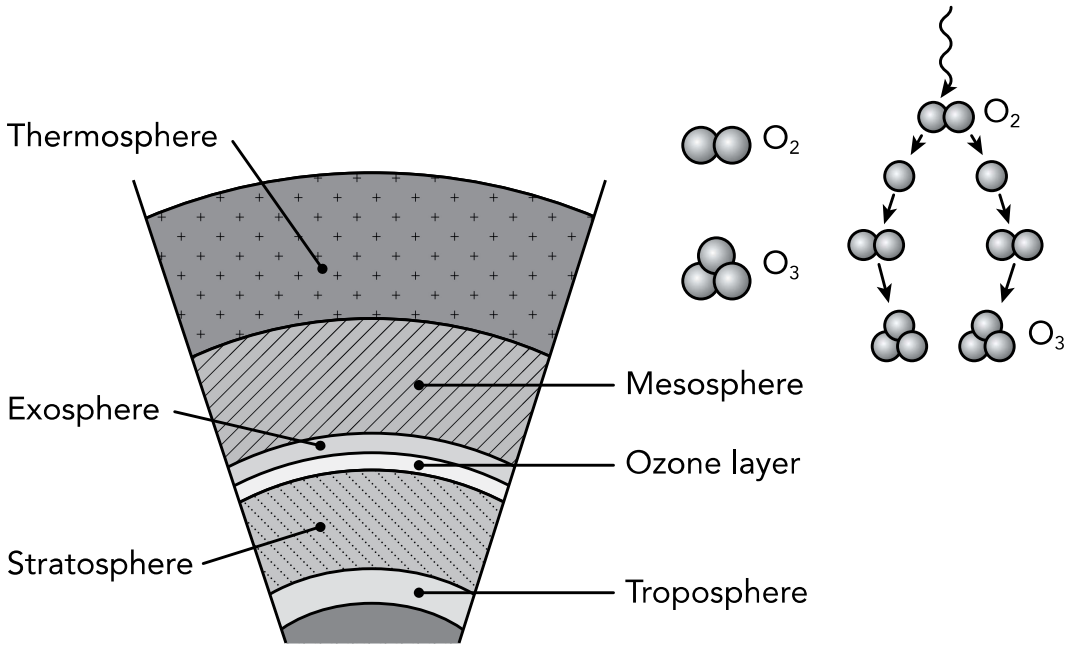
C. Find the distance on the floor between the first and last person.

D. Measure each person's arm from the hands to the top of the heads.

Name _____ Date_____

Use the information to answer questions 58 through 60.

Ozone is both a good and a bad gas that is present in Earth's atmosphere. Depending on where it is found, it can either protect people or poison them. Ozone is formed when high energy radiation interacts with oxygen gas. The presence of other pollution, typically in the form of smog, increases the chance of ozone formation. Ozone itself can absorb this radiation, but it turns the radiation into lower energy heat. When human beings breathe in ozone, it can poison them, however.



Name _____ Date_____

58 What makes Florida a likely place for ozone formation?

F. More oxygen than other areas of the United States.

G. More cars than other areas of the United States.

H. Increased solar radiation compared to higher latitudes.

I. Higher temperatures compared to higher latitudes.

59 Florida has had a difficult time reducing the amount of ozone that people are exposed to. The United States ratified the Montreal Protocol in 1989 in order to deal with the amount of ozone at all levels of the atmosphere. There was a significant reduction in the amount of poisonous Ozone at that time, but more communities in Florida are experiencing this pollution again.

What is something that people in Florida might do to best protect themselves from this problem?

A. Pass laws to reduce the amount of pollution that causes ozone.

B. Reduce the amount of radiation coming from the Sun.

C. Install filters for all of the houses and buildings in Florida.

D. Research ways to decrease the presence of oxygen in the atmosphere.

60 Ozone is a problem in lower regions of the atmosphere. In the upper stratosphere, however, ozone plays a critical role. What does ozone do in the upper atmosphere?

F. Absorb harmful radiation.

G. Keep the atmosphere warm.

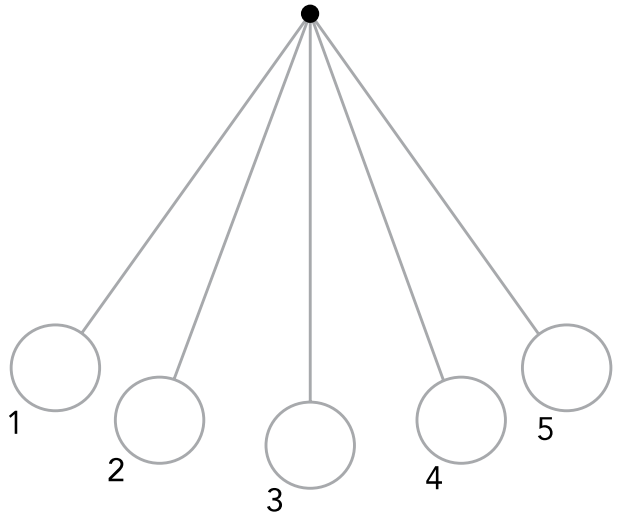
H. Help the formation of clouds.

I. Protects Earth from space junk by burning it up.

Name _____ Date_____

Use the information to answer questions 61 through 63.

A pendulum is a sphere suspended on a string. A student pulled the sphere to position 1 and then let go. The path of the moving pendulum is shown in the diagram.



Name _____ Date_____

61 What two forms of energy make up the total energy of the pendulum?

A. kinetic and potential

B. gravitational and potential

C. unbalanced and balanced

D. electrical and magnetic

62 Students make a graph to represent the total energy of this pendulum over time. They label the horizontal axis "Time." They label the vertical axis "Energy." What line on the graph would **best** describe the total energy of the pendulum as it moves from position 1 to position 5?

F. a line that curves downward

G. a flat line that does not slope up or down

H. a straight line that slopes upward

I. a line that curves upward

63 Students then analyze the motion of a second pendulum; Pendulum 2. The sphere of the second pendulum has a greater mass and the string is longer than that of Pendulum 1. The sphere on the second pendulum swings faster and further than that of Pendulum 1. Which mathematical statement comparing the two pendulums is correct?

A. At position 2, the total energy of Pendulum 1 is equal to the total energy of pendulum 2.

B. At position 1, the potential energy of Pendulum 1 is equal to the potential energy of pendulum 2.

C. At position 5, the kinetic energy of Pendulum 1 is equal to the kinetic energy of pendulum 2.

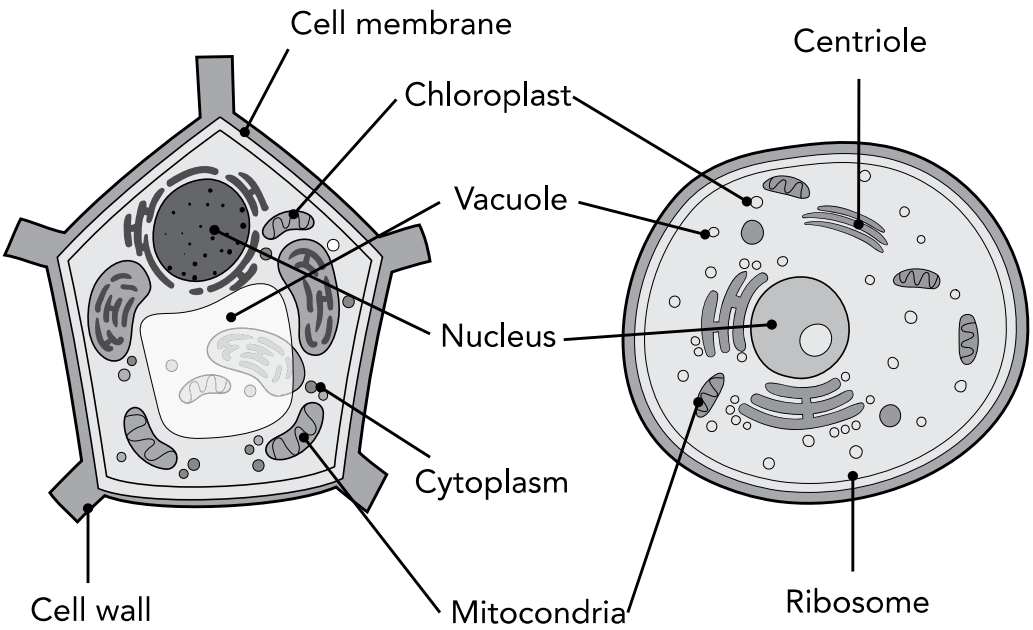
D. At position 4, the total energy of Pendulum 1 is equal to the total energy of pendulum 2.

Name _____ Date_____

Use the information to answer questions 64 through 66.

Both humans and plants are both made up of cells. Although there are differences in the cells, there are many things they have in common. The drawings below are based on a view under a powerful electron microscope.

Plant Cell **Animal Cell**



Name _____ Date_____

64 Based on the diagram, which type of structure(s) do the plant cell and animal cell both contain?

F. They both have photosynthetic structures.

G. They both have one very large structure for storage.

H. They both have structures that control the activities of the cell.

I. They both have rigid structures that give the cell shape and protection.

65 Light microscopes are often used to study cells. They are not as powerful as electron microscopes and do not allow you to clearly see very small structures in the cells. The view of a group of cells below is from a light microscope.

What feature can clearly help identity the cell type?

A. The cell wall can be used to identify them as plant cells.

B. The nucleus can be used to identify them as animal cells.

C. The chloroplasts can be used to identify them as plant cells.

D. The mitochondria can be used to identify them as animal cells.

66 Plant and animal cells in the diagram contain cytoplasm. Cytoplasm is a gel-like substance made of water, proteins, carbohydrates, salts, sugars, and other molecules. The cell needs these substances to live.

Based on this information and the diagrams, which of the following **best** describes the role of the cytoplasm?

F. It is the site of photosynthesis and carries wastes to the cell membrane.

G. It absorbs energy and blocks unwanted materials from entering the cell.

H. It controls all the activities in the cell and is the site of energy production.

I. It provides support for cell parts and transports chemical within the cell.